

Abstract

Process for gas-phase polymerization carried out in two interconnected polymerization zones, to which one or more α -olefins $\text{CH}_2=\text{CHR}$ are fed in the presence of catalyst under reaction conditions and from which the polymer product is discharged. The process is characterized in that the growing polymer flows through a first polymerization zone under fast fluidization conditions, leaves said first zone and enters a second polymerization zone through which it flows in a densified form under the action of gravity, leaves said second zone and is reintroduced into the first polymerization zone, thus establishing a circulation of polymer around the two polymerization zones. The novel process allows olefins to be polymerized in the gas phase with high productivity per unit volume of the reactor without incurring the problems of the fluidized-bed technologies of the known state of the art.